We claim:

1. A generator control apparatus for supplying field current to a power generator, comprising:

a field current modulator that repeatedly switches between an ON state and an OFF state to control a flow of field current to said power generator;

a free-wheeling path that, when said field current modulator is in the OFF state, feeds excitation current received from said generator back to said power generator as a field current component; and

an impedance circuit that selectively and temporarily absorbs excitation current in said free-wheeling path when said field current modulator is in the OFF state to reduce voltage overshoot in said power generator upon occurrence of an operating transition.

2. The invention as defined in claim 1, further comprising:

an impedance circuit by-pass connected across said impedance circuit, said impedance circuit by-pass selectively providing a low-impedance path across said impedance circuit so that said impedance circuit does not absorb excitation current.

3. The invention as defined in claim 2, wherein said impedance circuit by-pass (222) is a transistor.

4. The invention as defined in claim 2, further comprising:

an impedance circuit by-pass controller that switches said impedance circuit by-pass between an ON state and an OFF state.

5. The invention as defined in claim 1, wherein

said free-wheeling path includes a freewheeling diode receiving an output of said impedance circuit.

6. The invention as defined in claim 1, wherein said field current modulator is a transistor.

7. The invention as defined in claim 1, further comprising:

a field current modulation switch driver that repeatedly switches said field current modulator between the ON state, in which excitation current from said generator is sent to ground, and the OFF state, in which excitation current from said generator is received by said free-wheeling path.

8. The invention as defined in claim 1, wherein said impedance circuit absorbs excitation current in said free-wheeling path following load-removal to reduce output voltage overshoot of said power generator.

9. The invention as defined by claim 1, wherein said impedance circuit absorbs excitation current in said free-wheeling path during power-up of said power generator.

10. The invention as defined by claim 1, wherein said impedance circuit selectively and temporarily absorbs excitation current in said free-wheeling path based on a generator line contactor command.

11. The invention as defined by claim 1, wherein said impedance circuit is an RC circuit.

12. A method of controlling a power generator, said method comprising:

repeatedly switching a field current modulator between an ON state and an OFF state to control a flow of field current to said power generator;

feeding excitation current, via a free-wheeling path, back to said power generator as a field current component when said field current modulator is in the OFF state; and

selectively and temporarily absorbing excitation current in said free-wheeling path, using an impedance circuit, to reduce voltage overshoot of said power generator upon occurrence of an operating transition.

13. The invention as defined in claim 12, further comprising:

controlling an impedance circuit by-pass connected across said impedance circuit to selectively provide a low-impedance path across said impedance circuit so that said impedance circuit does not absorb excitation current.

14. The invention as defined in claim 12, wherein said field current modulator sends excitation current from said generator to ground when in said ON state.

15. The invention as defined in claim 12, wherein said step of selectively absorbing excitation current in said free-wheeling path introduces impedance into said free-wheeling path following load-removal to reduce output voltage overshoot of said power generator.

16. The invention as defined by claim 12, wherein said step of selectively absorbing excitation current absorbs excitation current in said free-wheeling path during power-up of said power generator to reduce voltage overshoot.

17. The invention as defined by claim 12, wherein said step of selectively absorbing excitation current absorbs excitation current in said free-wheeling path based on a generator line contactor command.

18. The invention as defined by claim 12, wherein said impedance circuit is an RC circuit.

19. A generator control apparatus for supplying field current to a power generator, comprising:

field current modulation means for controlling a flow of field current to said power generator by repeatedly switching between an ON state and an OFF state;

means for feeding excitation current, via a free-wheeling path, to said power generator as a field current component when said field modulation means is in the OFF state; and

means for selectively and temporarily absorbing excitation current in said free-wheeling path to reduce voltage overshoot of said power generator upon occurrence of an operating transition.

20. The invention as defined in claim 19, further comprising:

means for selectively providing a low-impedance path across said means for selectively absorbing excitation current.

21. The invention as defined in claim 19, wherein said means for selectively absorbing excitation current absorbs excitation current in said free-wheeling path following load-removal to reduce output voltage overshoot of said power generator.

22. The invention as defined by claim 19, wherein said means for selectively absorbing excitation current absorbs excitation current in said free-wheeling path during power-up of said power generator.

23. The invention as defined by claim 19, wherein said means for selectively absorbing excitation current absorbs excitation current in said free-wheeling path based on a generator line contactor command.